

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

**ORDER NO. R2-2002-0096
NPDES PERMIT NO. CA0038768**

AMENDMENT OF WASTE DISCHARGE REQUIREMENTS, ORDER NO. 00-003, FOR:

THE CITY OF AMERICAN CANYON, NAPA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, hereinafter called the Board, finds that:

1. On January 19, 2000, the Board adopted Order No. 00-003, a new NPDES permit for the City of American Canyon (hereinafter the Discharger). Order No. 00-003 will regulate the effluent discharged to North Slough, an existing tidally influenced wetland tributary to the Napa River.
2. On October 17, 2001, the Board adopted Order No. 01-113, a permit amendment allowing the discharge of tertiary effluent to constructed freshwater wetlands.

Discharge Description

3. The Discharger owns and operates a new municipal wastewater treatment and reclamation facility (the Plant), located at 151 Mezzetta Court in the City of American Canyon, Napa County, California (see **Attachment A: Site Location Map**). The Plant provides tertiary level treatment of wastewater from domestic, commercial and industrial sources within the City of American Canyon which has a population of approximately 10,000 (1998).
4. The Discharger had pumped raw wastewater generated from its service area to the Napa Sanitation District's (NSD) treatment facility before the Plant was operational. The average annual flows from the Discharger to NSD were approximately 1.0 million gallons per day (mgd) and approximately 3.2 mgd during peak wet weather (PWWF). The flow data of the wastewater collected from the Plant's service area show that the average dry weather flow for the past three years is 1.06 mgd, and the average wet weather flow is 1.09 mgd (July 1999 - June 2001).
5. The Plant started in late July 2002. Before September 1, 2002, the effluent was sent back to NSD. Currently, the effluent is stored on-site. The discharge is anticipated to begin in late September 2002. It is expected that the Plant will have approximately 1.2 mgd average dry weather flow (ADWF) and 4.0 mgd PWWF. The Plant will have an ADWF design capacity of 2.5 mgd, and a PWWF design capacity of 5.0 mgd.

Purpose of Order

6. This Order removes the copper and nickel mass limits contained in Order No. 00-003. This is based on Board's decision in 2001 to de-list both copper and nickel from the 303(d) list for San Pablo Bay; and concentration limits are adequate to protect against the water column toxicity of non-bioaccumulative substances using best professional judgment (BPJ).
7. This Order modifies the mercury concentration limit, mass trigger, and mass emission limit contained in Order No. 00-003. The new concentration and mass limits are based on the State Water Resources

Control Board's (State Board) Napa Remand Order WQ 2001-16, Basin Plan, and best professional judgment (BPJ).

8. This Order exempts the Discharger from the Statewide Industrial Storm Water General Permit specified in Finding 43 of Order No. 00-003, since the Discharger sends the storm water collected at the site to the headworks for treatment.
9. This Order removes the effluent limitation B(5) - chlorine residual limit from Order No. 00-003, since the Discharger uses Ultra Violet disinfection system for their discharges to the slough or the constructed wetlands, therefore, the chlorine residual limit is not applicable.

Basis of Order

10. The Board has the authority to modify this NPDES permit pursuant to Porter-Cologne Water Quality Control Act (California Water Code), Section 13263 (e), which provides authority to the Board on its own motion to review and revise permit requirements. When, as here, a permit is modified (as opposed to revoked and re-issued), only the conditions subject to modification are re-opened.
11. Basis for removing copper/nickel mass limits.
 - a. *Copper/nickel site-specific objectives (SSOs)*. The Discharger is cooperating with other dischargers to conduct impairment assessment studies aimed at collecting additional copper and nickel data in San Pablo Bay. The Board has considered these studies in its 303(d) listing decision in 2001, and will consider them when assessing any SSOs proposed for copper and nickel. Future copper/nickel WQBELs would be developed consistent with SIP procedures in Section 5.2 if the impairment studies support adoption of an SSO. On November 28, 2001, the Board considered a staff report on Proposed Revisions to Section 303(d) List and Priorities for Development of Total Maximum Daily Loads (TMDLs) for the San Francisco Bay Region and authorized the Executive Officer to transmit proposed revisions to the State Board. Copper and nickel are proposed to be de-listed from all segments of the San Francisco Estuary north of the Dumbarton Bridge including San Pablo Bay but excluding the tidal portion of the mouth of Petaluma River.
 - b. *Concentration limit vs. mass limit*. For non-bioaccumulative constituents, such as copper and nickel, the concentration limit is adequate to guard against the water column acute and chronic toxicity. Since there are water quality-based effluent limits for both copper and nickel in Order No. 00-003, therefore, the mass limits are not required.
12. *Misinterpretation of mercury WQO using BPJ*. In response to the State Board's Order No. WQ 2001-16, it is concluded to be inappropriate to use a footnote value as the applicable water quality objective without performing a cost-benefit analysis (California Water Code, Section 13241). Order No. 00-003 has a mercury limit of 0.012 µg/L which is based on the footnote value of Table 3-3 of Basin Plan; the mass trigger and limits were calculated using this limit. These limits were based on the BPJ at the time the permit was issued.
13. *Anti-backsliding*. The anti-backsliding is not triggered because the discharges have not commenced, and the limits in Order No. 00-003 are not in effect.

CEQA and Public Notice of Action

14. This Order serves as an amendment to NPDES Permit No. CA0038768, adoption of which is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public

Resources Code [California Environmental Quality Act (CEQA)] pursuant to Section 13389 of the California Water Code.

15. The Discharger and interested agencies and persons have been notified of the Board's intent to reissue requirements for the existing discharge and have been provided an opportunity to submit their written views and recommendations.
16. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to the provisions of Division 7 of the California Water Code and regulations adopted thereunder, and to the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, that the Discharger shall comply with the following amendments to Order No. 00-003 as amended. To distinguish the original language contained in Order No. 00-003, for this Order, all the amendments are highlighted by underline for additions and ~~striketrough~~ for deletions, except for those specified as "Replace" or "Remove".

1. Replace Finding 32.a with the following finding:

- a. *Mercury Water Quality Objectives.* The Basin Plan includes water quality objectives (WQOs) that govern mercury in the receiving water. The Basin Plan specifies objectives for the protection of aquatic life of 0.025 µg/L as 4-day average and 2.1 µg/L as 1-hour average.

2. Remove Finding 32.e, and replace with the following findings:

- e. *Mercury Virtual Elimination Program (MVEP).* The Discharger has been implementing an aggressive mercury pollution prevention program, with the goal to virtually eliminate mercury releases to environment that result from human activity within the City of American Canyon (City), as well as outside sources that impact the City and are within the City's jurisdiction to control. The program targets either consumer products containing mercury or manufacturers that use mercury. The MVEP containing the general guidelines and implementation plan was approved on October 7, 1999. On June 15, 2000, The City Council passed Resolution 2000-33 adopting the MVEP and authorized the implementation of the following tasks proposed by the MVEP: (1) replace fluorescent bulbs in City facilities, (2) replace thermostats in City facilities, (3) replace other mercury products such as switches in City facilities, and (4) implement mercury thermometer take-back/rebate program. The first three tasks were scheduled to begin by July 1, 2000, and are now completed or near completion. Task 4 is an on-going program. The Discharger is required to submit a final or annual progress reports to document its implementation efforts of the MVEP as required by a provision of this Order.
- f. *Concentration-based Mercury Effluent Limitation.* This Order establishes QBELs based on Basin Plan's WQO of 0.025 µg/L for chronic protection and BPJ. The AMEL (average monthly average effluent limit) and MDEL (maximum daily effluent limit) are 0.020 µg/L and 0.041 µg/L, respectively (see **Attachment B: Mercury QBEL Calculation**).
- g. *Mass Trigger and Mass Emission Limits.* This Order establishes a mercury mass-based effluent limitation of 0.0027 kilograms per month (kg/month) and a mass trigger of 0.0018 kg/month. The mass trigger and mass limit are calculated using the flow data and the AMEL of 0.020 µg/L, as described below (see **Attachment C: Mercury Mass Limit and Mass Trigger Calculation**).

For the mass trigger calculation, the flow to be discharged into the slough or constructed wetlands is utilized. It is anticipated that approximately 25% of the total dry weather flow will be discharged to the slough, and 75% of the flow will be reclaimed. Therefore the monthly average flow to be discharged in dry weather season is assumed to be 0.25× actual monthly average flow. The mass limit calculation uses the total flow to be treated at the Plant. The 99.87th percentiles (or mean + 3 standard deviation) of the 12-month moving average mass loads for both flow scenarios (flow actual discharged and total flow treated) are used as the mass trigger and mass limit, respectively. The 12-month moving average load is calculated by timing the flow with the mercury AMEL, which is 0.020 µg/L.

Exceedances of the mass trigger will result in the Discharger to initiate the increased actions specified in Provision 2 of Order No. 00-003. This mass-based effluent limitation maintains current loadings until a TMDL is established and is consistent with state and federal anti-degradation and anti-backsliding requirements. The final mass-based effluent limitation may be based on the WLA derived from the mercury TMDL. Based on Board staff's report titled "Watershed Management of Mercury in the San Francisco Bay Estuary: Total Maximum Daily Load Report to U.S.EPA," dated June 30, 2000, municipal sources are a very small contributor of the mercury load to the Bay. Because of this, it is unlikely that the TMDL will require reduction efforts beyond the source controls required by the permit.

3. Finding 32.f in Order No. 00-003 becomes Finding 32.h.

4. Replace Finding 43 on Treatment Plant Storm Water Discharges with the following two paragraphs:

- a. *Regulation.* Federal Regulations for storm water discharges were promulgated by the U.S.EPA on November 19, 1990. The regulations [40 Code of Federal Regulations (CFR) Parts 122, 123, and 124] require specific categories of industrial activity (industrial storm water) to obtain an NPDES permit and to implement Best Available Technology Economically Available (BAT) and Best Conventional Pollutant Control Technology (BCT) to control pollutants in industrial storm water discharges.
- b. *Exemption from Coverage under Statewide Industrial Storm Water General Permit.* The State Board adopted a statewide NPDES permit for storm water discharges associated with industrial activities (NPDES General Permit CAS000001, adopted November 19, 1991, amended September 17, 1992, and reissued April 17, 1997). The Discharger is not required to be covered under the General Permit because all of the storm water captured within the wastewater treatment plant storm drain system is directed to the headworks of the Plant and treated to the standards contained in the Discharger's permit.

5. Revise Effluent Limitation Provision B.6 to read in part as follows:

"The effluent discharged shall not exceed the following limits. (All limits are in units of µg/L, unless otherwise specified) (a)(b):

Constituent	<u>Daily Average</u> <u>(µg/L) (b)</u>	<u>Monthly Average</u> <u>(µg/L)(b)</u>	<u>Mass Limits</u> <u>(kg/month)</u>
...			
Copper (c, e,f)	4.9		0.56 kg/month
...			

Mercury (e, f)	0.041(daily maximum)	0.020	0.0014 kg/month	0.0027
Nickel (d, e, f)	7.1		0.81 kg/month	

- (f) Compliance with the mass emission limit shall be based upon calculations in Provision 13. The Discharger shall demonstrate compliance with the mass-based limit using the discharge flow after diversion for reclamation. The mass and concentration limits may be revised upon completion of a Total Maximum Daily Load and Waste Load Allocation process. The permit may be modified to include a different requirement following completion of a TMDL and Waste Load Allocation, if consistent with the anti-backsliding rule in the Clean Water Act Section 402(o). Compliance with the mercury concentration limit of 0.012 µg/L may be based on a 3-month running average. Compliance with the mercury concentration limits will depend on the sampling frequency: if only one sample is taken in a calendar month, then this concentration will be compared with both AMEL and MDEL for compliance determination; if 2 or more samples are taken within a calendar month, both individual samples and average of these samples should be compared with MDEL and AMEL, respectively.

6. Replace Effluent Limitation Provision B.8 with the following:

8. Mercury Mass Trigger and Mass Emission Limit

Until TMDL and WLA efforts for mercury provide enough information to establish a different WQBEL, the Discharger shall demonstrate that the total mercury mass loading from discharges to San Pablo Bay has not increased by complying with the mass emission limit specified below.

- a. *Mass emission limit.* The mass emission limit for mercury is **0.0027 kg/month**. The total mercury mass load shall not exceed this limit except as provided under Section d. below.
- b. *Mass trigger.* The mass trigger for mercury is **0.0018 kg/month**. Exceedance of the mass trigger is not considered violation as long as the Discharger initiates the increased actions specified in Provision 2 or Order No. 00-003.
- c. *Compliance determination method.* Compliance with this mass limit and trigger shall be evaluated using monthly moving averages of total mass load, computed as below:

Monthly Total Mass Load (kg/month) = monthly plant effluent flow (in mgd) from the Outfall (E-001-S including discharge to both North Slough and the constructed wetlands) × monthly effluent concentration measurements (in µg/L) corresponding to the above flows, for samples taken at E-001-S × 0.1151 (conversion factor).

12-Month Monthly Moving Average of Total Mass Load = Average of the monthly total mass loads from the past 12 months

where

$$\text{Conversion factor} = 10^6 \text{ gallon/million gallon} \times 3.7854 \text{ liter/gallon} \times 30.42 \text{ day/month} \\ \times 10^{-9} \text{ kg/}\mu\text{g} = 0.1151 \text{ kg} \cdot \text{liter} \cdot \text{day} / (\text{month} \cdot \text{million gallon} \cdot \mu\text{g})$$

The Discharger shall submit a cumulative total mass loadings for the previous 12 months with each monthly Self-Monitoring Report. Compliance of each month will be determined based on the

12-month moving averages over the previous 12 months of monitoring calculated using the method described above. The Discharger may use monitoring data collected under accelerated schedules (i.e., special studies) to determine compliance. Since during the first 12 months of operation, the Discharger will not have enough data to calculate the 12-month moving average load, the compliance with the mass trigger and mass limit will be determined after 12 months of operation of the Plant.

- d. The mercury TMDL and WLAs will supersede this mass emission limitation upon their completion. The Clean Water Act's anti-backsliding rule, Section 402(o), indicates that this Order may be modified to include a less stringent requirement following completion of the TMDL and WLA, if the requirements for an exception to the rule are met.

7. Remove effluent limitation B(5) Chlorine Residual (page 21):

- ~~5. The effluent shall not contain a residual chlorine concentration greater than 0.0 mg/L at any time. This concentration limit is defined as below the limit of detection in standard test methods.~~

The permit language in Order No. 00-003 and Self-Monitoring Program (SMP) regarding the continuous chlorine residual monitoring for Station E-001-S (discharge to North Slough) and E-002-R (reclamation) are revised accordingly:

- (1) NPDES permit, Finding 19.c, page 6, second paragraph, last sentence is revised to read as:

Thus, this Order specifies that E-001-S shall be monitored continuously for flow, ~~chlorine residual~~ and pH and by daily grab samples for dissolved oxygen and temperature.

- (2) SMP, Table 1, page 7 and 8, remove Chlorine Residual monitoring requirement:

Station	Constituent	Unit	Type of Sample	Frequency of Analysis
E-001-S	Chlorine Residual [5]	mg/L	Continuous	Continuous
---	---			
E-002-R	Chlorine Residual [5]	mg/L	Continuous	Continuous

- (3) SMP, remove Footnote 5 for Table 1 and 2, page 10:

- ~~5. Chlorine residual concentrations shall be monitored and reported both prior to and following dechlorination. Total chlorine dosage (kg/day) shall be recorded on a daily basis.~~

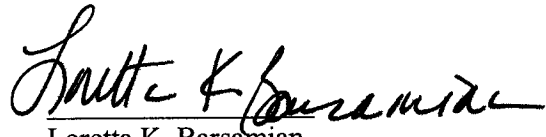
8. Mercury Virtual Elimination Program (MVEP) Report

The Discharger shall submit a final or annual progress reports documenting the implementation efforts and results of the MVEP. The progress reports shall be submitted to the Board by February 28th of each year. The final report shall be submitted, acceptable to the Executive Officer, within 60 days of the completion of the MVEP.

Order Expiration

This Order becomes effective on September 18, 2002 and expires on January 19, 2005. The Discharger must file a Report of Waste Discharge in accordance with Title 23 of the California Administrative Code no later than 180 days before this expiration date as application for reissuance of waste discharge requirements.

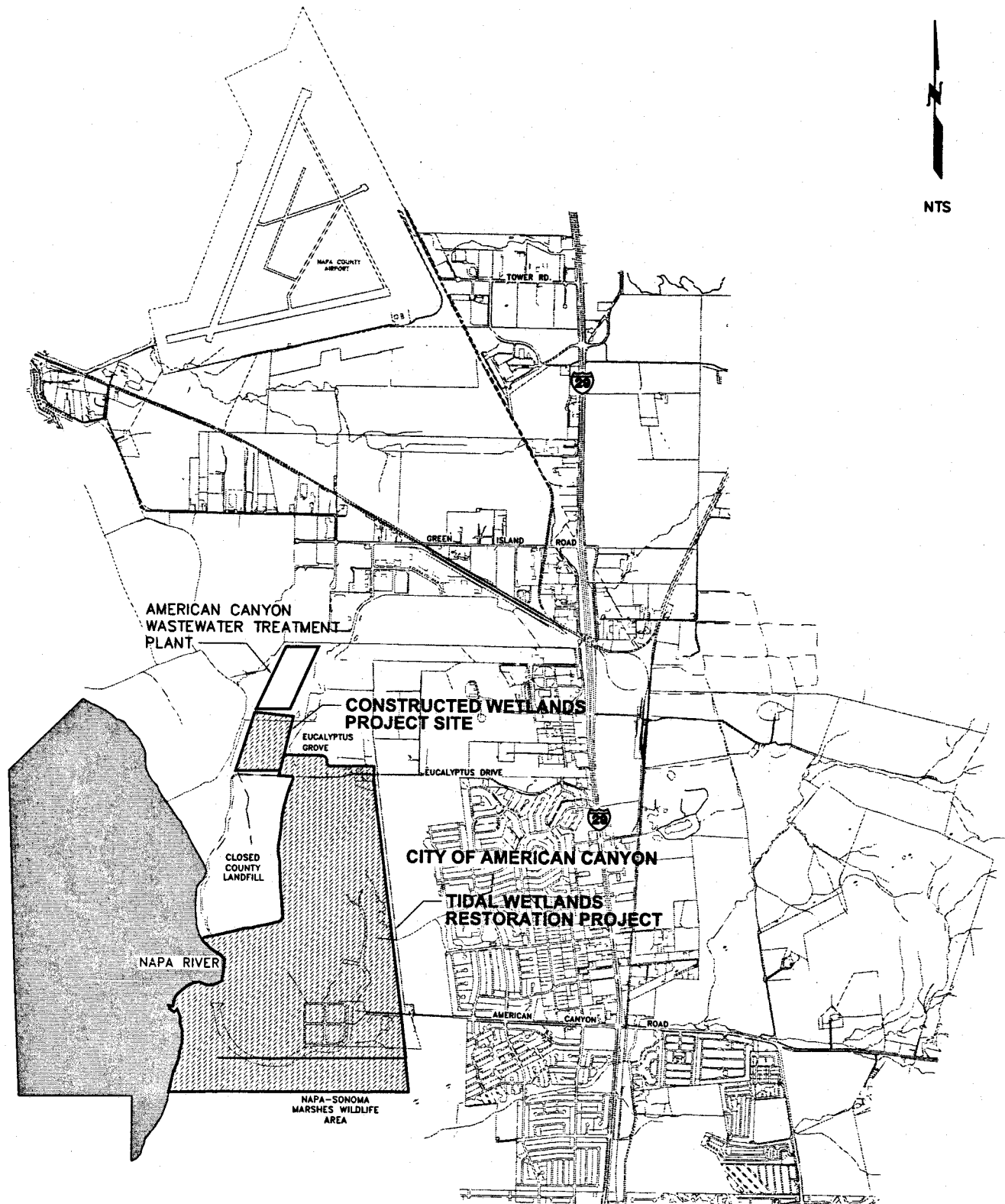
I, Loretta K. Barsamian, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on September 18, 2002.


Loretta K. Barsamian
Executive Officer

ATTACHMENT

- A. Site Location Map
- B. Mercury Water Quality Based Effluent Limit (WQBEL) Calculation
- C. Mercury Mass Limit and Mass Trigger Calculation

NTS



ATTACHMENT B

Mercury Water Quality-Based Effluent Limit (WQBEL) Calculation

ATTACHMENT B

City of American Canyon

Mercury Water Quality Based Effluent Limit (WQBEL) Calculation

PRIORITY POLLUTANT	Mercury (ug/L)
Basis and Criteria type	BP sw (4-d)
Lowest WQO	0.025
Translator (if applicable)	NA
Applicable Acute WQO	2.1
Applicable Chronic WQO	0.025
Applicable Human Health WQO	
Background	NA
Avg bckgrnd (for HH criteria only)	NA
ECA acute	2.10
ECA chronic	0.03
avg	
SD	
CV	0.6000
ECA acute mult	0.3211
ECA chronic mult	0.5274
LTA acute	0.6743
LTA chronic	0.0132
minimum of LTAs	0.0132
AMEL mult95	1.5524
MDEL mult99	3.1145
AMEL (aq life)	0.0205
MDEL(aq life)	0.0411
MDEL/AMEL Multiplier (from Table 2, SIP)	
AMEL (human hlth)	
MDEL (human hlth)	
minimum of AMEL for Aq. life vs HH	0.0205
minimum of MDEL for Aq. Life vs HH	0.041
Final limit - AMEL (ug/L)	0.020
Final limit - MDEL (ug/L)	0.041

ATTACHMENT C

Mercury Mass Limit and Mass Trigger Calculation

ATTACHMENT C

City of American Canyon

Mercury Mass Limit and Mass Trigger Calculation

		Mercury mass limit calculation			Mass trigger calculation		
Date	Hg Conc. (ug/L)	Total Flow (cfs)	mass load (kg/month)	12-month moving average load (kg/month)	Estimated Discharge Flow (cfs)	mass load (kg/month)	12-month moving average load (kg/month)
Jul-99	0.02	0.950	0.0022		0.2375	0.0005	
Aug-99	0.02	1.470	0.0034		0.3675	0.0008	
Sep-99	0.02	1.270	0.0029		0.3175	0.0007	
Oct-99	0.02	1.210	0.0028		0.3025	0.0007	
Nov-99	0.02	1.130	0.0026		1.130	0.0026	
Dec-99	0.02	1.020	0.0023		1.020	0.0023	
Jan-00	0.02	0.893	0.0021		0.893	0.0021	
Feb-00	0.02	0.877	0.0020		0.877	0.0020	
Mar-00	0.02	0.910	0.0021		0.910	0.0021	
Apr-00	0.02	0.927	0.0021		0.927	0.0021	
May-00	0.02	0.903	0.0021		0.22575	0.0005	
Jun-00	0.02	0.794	0.0018	0.0024	0.1985	0.0005	0.0014
Jul-00	0.02	1.012	0.0023	0.0024	0.253	0.0006	0.0014
Aug-00	0.02	1.381	0.0032	0.0024	0.34525	0.0008	0.0014
Sep-00	0.02	1.368	0.0031	0.0024	0.342	0.0008	0.0014
Oct-00	0.02	1.063	0.0024	0.0024	0.26575	0.0006	0.0014
Nov-00	0.02	1.006	0.0023	0.0023	1.01	0.0023	0.0014
Dec-00	0.02	0.960	0.0022	0.0023	0.96	0.0022	0.0014
Jan-01	0.02	0.962	0.0022	0.0023	0.96	0.0022	0.0014
Feb-01	0.02	1.329	0.0031	0.0024	1.33	0.0031	0.0015
Mar-01	0.02	1.051	0.0024	0.0024	1.05	0.0024	0.0015
Apr-01	0.02	0.970	0.0022	0.0025	0.97	0.0022	0.0015
May-01	0.02	0.912	0.0021	0.0025	0.228	0.0005	0.0015
Jun-01	0.02	0.983	0.0023	0.0025	0.24575	0.0006	0.0015
Jul-01	0.02	1.005	0.0023	0.0025	0.25125	0.0006	0.0015
Aug-01	0.02	1.013	0.0023	0.0024	0.25325	0.0006	0.0015
Sep-01	0.02	0.899	0.0021	0.0023	0.22475	0.0005	0.0015
Oct-01	0.02	0.970	0.0022	0.0023	0.2425	0.0006	0.0015
Nov-01	0.02	0.912	0.0021	0.0023	0.91	0.0021	0.0015
Dec-01	0.02	0.983	0.0023	0.0023	0.98	0.0023	0.0015
Jan-02	0.02	1.778	0.0041	0.0025	1.78	0.0041	0.0016
Feb-02	0.02	1.580	0.0036	0.0025	1.58	0.0036	0.0017
Mar-02	0.02	1.199	0.0028	0.0025	1.20	0.0028	0.0017
Apr-02	0.02	1.070	0.0025	0.0026	1.07	0.0025	0.0017
May-02	0.02	0.921	0.0021	0.0026	0.23025	0.0005	0.0017
Jun-02	0.02	0.873	0.0020	0.0025	0.21825	0.0005	0.0017
			Mass Limit			Mass Trigger	
			average	0.0024		average	0.0015
			std. Dev	0.0001		std. Dev	0.0001
			Mean+3SD	0.0027		Mean+3SD	0.0018